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GO2-15-099  
July 20, 2015

10 CFR 50.73

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555-0001

Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397  
LICENSEE EVENT REPORT NO. 2015-004-00**

Dear Sir or Madam:

Transmitted herewith is Licensee Event Report No. 2015-004-00 for Columbia Generating Station. This report is submitted pursuant to 10 CFR 50.73(a)(2)(iv)(A).

There are no commitments being made to the NRC by this letter. Should you have any questions, please call JR Trautvetter, Regulatory Compliance Supervisor, at (509) 377-4337.

Executed on 7/19/15

Respectfully,

W. G. Hettel  
Vice President, Operations

Enclosure: Licensee Event Report No. 2015-004-00

cc:  
NRC Region IV Administrator  
NRC NRR Project Manager  
NRC Sr. Resident Inspector/988C  
CD Sonoda – BPA/1399  
WA Horin - Winston & Strawn

**LICENSEE EVENT REPORT NO. 2015-004-00**  
Enclosure

Licensee Event Report No. 2015-004-00

<b>NRC FORM 366</b> (01-2014)		<b>U.S. NUCLEAR REGULATORY COMMISSION</b>			<b>APPROVED BY OMB: NO. 3150-0104</b>		<b>EXPIRES 01/31//2017</b>					
<b>LICENSEE EVENT REPORT (LER)</b> (See Page 2 for required number of digits/characters for each block).					Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollections.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.							
<b>1. FACILITY NAME</b> Columbia Generating Station					<b>2. DOCKET NUMBER</b> <b>05000 397</b>		<b>3. PAGE</b> <b>1 OF 3</b>					
<b>4. TITLE</b> Unplanned Loss of 4.16KV Bus 7 Switchgear												
<b>5. EVENT DATE</b>			<b>6. LER NUMBER</b>			<b>7. REPORT DATE</b>			<b>8. OTHER FACILITIES INVOLVED</b>			
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER		
5	22	2015	2015 - 004 - 00			7	20	2015	N/A	05000		
									FACILITY NAME	DOCKET NUMBER		
									N/A	05000		
<b>9. OPERATING MODE</b>			<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)</b>									
5			<input type="checkbox"/> 20.2201(b)			<input type="checkbox"/> 20.2203(a)(3)(i)			<input type="checkbox"/> 50.73(a)(2)(i)(C)		<input type="checkbox"/> 50.73(a)(2)(vii)	
			<input type="checkbox"/> 20.2201(d)			<input type="checkbox"/> 20.2203(a)(3)(ii)			<input type="checkbox"/> 50.73(a)(2)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
			<input type="checkbox"/> 20.2203(a)(1)			<input type="checkbox"/> 20.2203(a)(4)			<input type="checkbox"/> 50.73(a)(2)(ii)(B)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
			<input type="checkbox"/> 20.2203(a)(2)(i)			<input type="checkbox"/> 50.36(c)(1)(i)(A)			<input type="checkbox"/> 50.73(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(ix)(A)	
<b>10. POWER LEVEL</b>			<input type="checkbox"/> 20.2203(a)(2)(ii)			<input type="checkbox"/> 50.36(c)(1)(ii)(A)			<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)		<input type="checkbox"/> 50.73(a)(2)(x)	
0			<input type="checkbox"/> 20.2203(a)(2)(iii)			<input type="checkbox"/> 50.36(c)(2)			<input type="checkbox"/> 50.73(a)(2)(v)(A)		<input type="checkbox"/> 73.71(a)(4)	
			<input type="checkbox"/> 20.2203(a)(2)(iv)			<input type="checkbox"/> 50.46(a)(3)(ii)			<input type="checkbox"/> 50.73(a)(2)(v)(B)		<input type="checkbox"/> 73.71(a)(5)	
			<input type="checkbox"/> 20.2203(a)(2)(v)			<input type="checkbox"/> 50.73(a)(2)(i)(A)			<input type="checkbox"/> 50.73(a)(2)(v)(C)		<input type="checkbox"/> OTHER	
			<input type="checkbox"/> 20.2203(a)(2)(vi)			<input type="checkbox"/> 50.73(a)(2)(i)(B)			<input type="checkbox"/> 50.73(a)(2)(v)(D)		Specify in Abstract below or in NRC Form 366A	
<b>12. LICENSEE CONTACT FOR THIS LER</b>												
FACILITY NAME JR Trautvetter, Compliance Supervisor								TELEPHONE NUMBER (Include Area Code) 509-377-4337				
<b>13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT</b>												
CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX								
<b>14. SUPPLEMENTAL REPORT EXPECTED</b>								<b>15. EXPECTED SUBMISSION DATE</b>				
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)								<input checked="" type="checkbox"/> NO				
								MONTH	DAY	YEAR		
<b>ABSTRACT</b> (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)												
<p>This event is being reported as an unplanned actuation of an emergency diesel generator, in conformance with reporting requirements in 10 CFR 50.73(a)(2)(iv)(A). Refer to Columbia Generating Station's Event Notification No. 51086.</p> <p>On May 22, 2015, during a refueling outage with the plant in Mode 5, electricians in support of testing on the Division 1 Emergency Diesel Generator installed 3 test meters to monitor the under voltage relay in the Division 1 4.16KV Bus 7 Switchgear (E-SM-7) cabinet. Prior to commencing the testing one of the test leads connecting the test meters to the Bus 7 Switchgear cabinet became detached from the test instrument. When one of the electricians reconnected the test lead, it was inserted into the wrong port on the test instrument, causing a phase-to-phase short which resulted in a momentary loss of Bus E-SM-7. The Bus was being powered from the Startup Transformer. The Backup Transformer sensed the loss and re-powered Bus E-SM-7. In addition, the Division 1 Emergency Diesel auto-started on bus under voltage and was subsequently removed from service when the Standby Service Water pump failed to start as a result of a blown fuse caused by the short.</p> <p>The Division 2 electrical distribution was providing the electrical power and supporting components required for decay heat removal and inventory control at the time of the event and was not impacted by the event.</p>												

**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

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<b>1. FACILITY NAME</b>  <b>Columbia Generating Station</b>	<b>2. DOCKET</b>  <b>05000 397</b>	<b>6. LER NUMBER</b>			<b>3. PAGE</b>  <b>2 OF 3</b>
		<b>YEAR</b>	<b>SEQUENTIAL NUMBER</b>	<b>REV NO.</b>	
		<b>2015</b>	<b>- 004</b>	<b>- 00</b>	

**NARRATIVE**

**Plant Conditions**

At the time of the event the plant was in Mode 5, water level was at the normal refuel flooded level with fuel pool cooling gates removed. Water Level Band was 487 – 491" and the temperature band was 80 – 110 degrees F. Division 2 was providing the electrical power and supporting components required for decay heat removal and inventory control. The Division 1 Service Water System [BI] and Diesel Generator (DG-1) [EK] were inoperable but available in preparation for Loss of Coolant (LOCA) testing of DG-1. The Division 1 4.16KV Bus 7 Switchgear (E-SM-7) [SWGR] became inoperable due to this event but it was not required for compliance with Technical Specifications 3.8.2 because the plant was in a Division 1 outage and the Division 2 E-SM-8 remained operable.

**Event Description**

On May 22, 2015, Maintenance electricians supporting Operations in the performance of LOCA testing of DG-1 connected three Fluke 43 meters [H2M] at the E-SM-7 cabinet for harmonic data collection. The test leads were not long enough to reach from the terminal strip to the floor, so the Flukes were duct taped to the inside of the cabinet and the test leads connected. After a pre-job brief with Operations and prior to initiating the LOCA test, the electricians checked on the meter set up and found that one of the Fluke meters had fallen to the cubicle floor and one of the test leads had become disconnected. At approximately 00:14 one of the electricians reinstalled the meter and when reconnecting the test lead inserted it into the wrong port on the Fluke. This resulted in a potential transformer (PT) phase to phase short which caused a momentary loss of bus E-SM-7. The Backup Transformer (E-TR-B) [XFMR] sensed the loss and repowered the bus. In addition DG-1 sensed the bus under-voltage condition and received an initiation signal causing it to start.

At 00:16, the Division 1 Diesel Generator was removed from service when its support Standby Service Water pump (SW-P-1A) [P] did not start. The pump failed to start due to a blown fuse [FU] caused by the short in the E-SM-7 Phase B-C Primary Under Voltage Relay, E-RLY-27/7/2 [RLY]. The failure of SW-P-1A did not impact any other safety functions because Division 2 equipment was relied upon for safety functions at the time.

The event caused the Reactor Building [NG] ventilation [LE] to isolate, as expected. The Division 1 Standby Gas Treatment system [BH] was already running in preparation for Secondary Containment [NH] differential pressure surveillance. The blown fuse prevented restoration of Reactor Building ventilation and load-shed power to Motor Control Centers [MCC] E-MC-7C and E-MC-7E due to a locked in under-voltage signal from relays E-RLY-27X/7 and E-RLY-62/7. There were no abnormal system responses that could not be attributed to the blown fuse. The affected Motor Control Centers were restored at 04:07. E-SM-7 was transferred back to the Startup Transformer and restored at 04:39.

**Cause**

The temporary loss of E-SM-7 and resulting emergency diesel actuation was due to a human performance error that occurred when the electrician reconnected the meter test lead incorrectly. When discovering the detached test lead, the electrician proceeded to re-attach it to the meter and connected it incorrectly. The electrician did not stop to analyze the configuration of the test leads and did not seek a peer check. A supervisor was not contacted for assistance or for direction about discontinuing the procedure until the right equipment was available for proper staging of the testing meters.

An additional causal factor occurred when the maintenance electricians failed to stop the testing procedure when the proper length of test leads were not available and failed to engage their supervision before proceeding. Placing the testing equipment on a stable platform or on the floor required test leads long enough to reach the cabinet's terminal strip. Rather than obtaining long leads, the technicians used the available short leads and attached the Fluke meters to the cabinet wall with tape.

Training was not part of the cause as no knowledge or skill deficiency was identified in the investigation.

LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Columbia Generating Station	05000 397	YEAR	SEQUENTIAL NUMBER	REV NO.	3 OF 3
		2015 -	004	- 00	

## NARRATIVE

## Immediate Corrective Action

The following immediate corrective actions were implemented: (1) Direction was provided by plant management to craft to no longer tape test instruments to cubicle walls; (2) Completed For Cause Fitness-for-Duty testing to craft and supervisor involved in incident; (3) Discussed in daily plant briefings about utilizing the correct tools for the job; (4) Individuals involved were coached on proper use of test leads and equipment; and (5) Replaced blown fuse (F25-2) and E-SM-7 was restored and realigned to the Startup Transformer.

## Additional Corrective Actions

The following further corrective actions are being implemented to prevent future occurrences of similar conditions: (1) The human performance behaviors that led to this event were addressed via the culpability model for current Columbia Generating Station personnel; (2) A work request has been generated to install applicable insulated banana jack test connections at the terminal strip used for the related testing; and (3) Purchased long leads and test connections to be used with Fluke 43 meters.

## Operating Experience and Previous Occurrences

The Licensee Event Reports (LERs) database was searched for similar incidents previously reported by the Columbia Generating Station. The following previous occurrences were found:

- LER# 94-014-00 (07/06/1994) – Engineered Safety Feature Actuation Due to Test Lineup. I&C Technicians were backfilling instrument lines to support excess flow check valve testing. A line up error created an invalid low level indication which caused several automatic actions including a Low Pressure Core Spray (LPCS) [BG] system actuation and injection.
- LER# 96-001-00 (04/25/1996) – Inadvertent ESF Actuators Due to Tripping of Temporary Power Supply to IN-3 by Outage Electricians. Electricians inadvertently opened the fused disconnect supplying the Uninterruptible Power Supply (UPS) [UJX] inverter IN-3 loads, causing a loss of power to the loads. This resulted in ESF actuations [JE] and containment isolations.
- LER# 98-013-00 (08/05/1998) – Engineered Safety Feature (ESF) Actuators Due to Deenergization of Vital Electrical Bus SM-8. During investigation of the cause for apparent emergency diesel generator 2 (DG-2) [EK] voltage regulator problems, vital electrical bus SM-8 [SWGR] and its associated loads were deenergized causing several ESF system isolations and half-isolations to occur.

## Assessment of Safety Consequences

Division 2 equipment was supporting all safety functions at the time of the event and the event was isolated to Division 1 equipment; therefore, there was no actual safety consequence to the event. There was no equipment damage, dose exposure, or injuries to station personnel. There was no change in plant status or operating condition and there was no actual risk to the public at any time.

## Energy Industry Identification System Information

Energy Industry Identification System information codes from IEEE Standards 805-1984 and 803-1983 are represented in brackets as [X] and [XX] throughout the body of the narrative.